

# The Space Weather Prediction Testbed: Coupling the GFS to space weather models

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## Abstract

The Space Weather Prediction Testbed (SWPT) is making significant progress on coupling the extended GFS weather model with the IPE space weather model. The goal of this activity is to forecast the tropospheric drivers of the near-Earth space environment. It is well known that at low and mid latitudes, much of the variability in the ionosphere ( $>100$  km) is the result of tides, planetary waves, and gravity waves propagating from the lower and middle atmospheres up to the top of the atmosphere (the thermosphere). To properly forecast the ionospheric conditions that impact GPS/GNSS systems, it is critical to forecast the neutral density and its variations between 100 and 600 km altitude. One of the major efforts of the SWPT is to further develop the Whole Atmosphere Model (extended GFS) and validate its performance. In this presentation, I will provide a short overview of the SWPT and the status of current activities. I will then provide a summary of the development of the Whole Atmosphere Model and the coupling of this model to the IPE space weather model.